REMARKS

Claims 1-10 are pending in the present application and are rejected.

Information Disclosure Statement

As noted in the Amendment filed on February 29, 2008, Applicant has not received a fully initialed copy of the Form PTO-1449 for the Information Disclosure Statement filed on October 10, 2007. Specifically, the Examiner has not initialed the documents in the "Other Documents" section of the Form PTO-1449. Applicant respectfully requests that the Examiner initial these documents to clarify for the record that they have been considered, and return an initialed copy of the Form PTO-1449 with the next Office communication.

Applicant's Response to Objections to the Specification

The Office Action appears to be of the position that paragraph [0023] states that the paste can be EITHER ion conductive OR aqueously dispersed, since it states that "[t]he ion conductive paste retained in the probe syringe may be selected from pastes having ion conductivity or aqueous dispersion." Therefore, the Office Action states that it is unclear how an ion conductive paste can still be ion conductive if it has aqueous dispersion.

This error was due to a translation error. Applicant intended to state that the paste is ion conductive AND aqueously dispersed. Therefore, Applicant herein amends this paragraph to state that "[t]he ion conductive paste retained in the probe syringe may be selected from pastes having ion conductivity and aqueous dispersion."

This is further clarified by the fact that the following sentence in paragraph [0023] states that "[t]he ion conductive paste of the present invention may include such as, for example, dental paste or paste formed by dispersing or mixing carbon black, metal powder, metal oxide powder, various whisker, carbon nano-tube into other aqueous binders." No new matter has been added.

Applicant's Response to Claim Rejections under 35 U.S.C. §103

Claims 1-4 and 6-10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kusano (U.S. Patent No. 6,508,647) in view of Schibler et al. (U.S. Patent No. 2,986,542).

It is the position of the Office Action that Kusano discloses the embodiments as claimed, with the exception of disclosing (i) that the ion conductive paste is aqueously dispersed and has thixotropic properties, and (ii) that the viscosity of the thixotropic ion conductive paste is 0.1 Pa·s to 5.0 Pa·s. The Office Action relies on Schibler to teach (i) and argues that (ii) would have been obvious.

Kusano is directed to a paste formulation for dental use. The paste formulations of Kusano may be formulated by mixing a suitable electric conductive material to conventional compositions for forming of calcium hydroxide paste, zinc eugenol paste, iodoform paste, and paraform-formaline paste.

Meanwhile, Schibler is not directed at dental or medical uses. Rather, Schibler is directed at pigmented resin lacquers for use in paper, leather and textile industries.

As explained in MPEP §2141.01(a):

> The examiner must determine what is "analogous prior art" for the purpose of analyzing the obviousness of the subject matter at issue. "Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent [or application at issue] can provide a reason for combining the elements in the manner claimed." *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1397 (2007). Thus a reference in a field different from that of applicant's endeavor may be reasonably pertinent if it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his or her invention as a whole.

As noted above, Schibler is directed at pigmented lacquers for use in the paper, leather and textile industries. One having ordinary skill in the dental arts would not have looked to the art of lacquers to improve dental pastes. The chemicals used in the lacquer arts are likely generally unsuitable for use in the dental arts, due to toxicity. Thus, Schibler is clearly not in the inventor's field of endeavor, and one having ordinary skill in the dental would not have looked to Schibler in seeking to improve the dental paste of Kusano.

Additionally, Applicant respectfully submits that Schibler's teachings would not be reasonably pertinent to one having ordinary skill in the dental paste arts, and thus, claims 1, 4 and 8 are not obvious in view of the combination of Kusano and Schibler. The Office Action fails to identify what ingredient of the lacquer of Schibler would impart the thixotropic properties. Instead, the Office Action merely identifies a property of the lacquer of Schibler and suggests that this property be adapted to the dental paste of Kusano. In other words, the Office Action is silent as to how one having ordinary skill in the art would modify the paste of Kusano in order to have thixotropic properties. The Office Action has failed to show that the ingredients of Schibler

which give the lacquer thixotropic properties would be compatible with the other ingredients of the paste of Kusano. In other words, one having ordinary skill in the art would not know whether the ingredient which gives the proposed dental paste its thixotropic properties causes a chemical reaction or change in properties which would make the paste no longer suitable for use as an ion conductive dental paste. Therefore, it would not have been obvious to modify Kusano by making the ion conductive paste thixotropic.

However, even if, *arguendo*, it would have been obvious to modify Kusano to make the ion conductive paste thixotropic, it would not have been obvious to modify such a thixotropic ion conductive paste to make it aqueously dispersed. First, although the Office Action alleges a reason why it would have been obvious to make the ion conductive paste thixotropic (discussed above) the Office Action provides no reason why it would have been obvious to make the paste aqueously dispersed.

A thixotropic aqueously dispersed ion conductive paste permeates through narrow cavities and fracture lines in teeth easier than a thixotropic non-aqueously dispersed ion conductive paste does. A thixotropic aqueously dispersed ion conductive paste has the benefit of reduced toxicity as compared with a thixotropic non-aqueously dispersed ion conductive paste, since water non-toxic. Additionally, it is easier to clean up after the use of a thixotropic aqueously dispersed ion conductive paste as compared with a thixotropic non-aqueously dispersed ion conductive paste. Finally, the use of water as a solvent allows for greater sustainability and stability of the cation in the ion conductive paste. When water is used as a solvent and the solute is an alkaline metal cation or an alkaline earth metal cation, even when the

cation bonds to a hydroxide ion (OH-), it is not harmful to human body, and allows for greater sustanability and stability of the cation. By simply putting the alkaline metal or alkaline earth metal into water, it ionizes and becomes an ion. As such, electrolyte substances (NaCl, KCl, RbCl, MgO, CaO, SrO, BaO etc.) which form ion crystals and have an electrically conductive nature may be used.

First, the Office Action fails to identify what ingredient of the lacquer of Schibler would impart the aqueously dispersible properties. Instead, the Office Action merely identifies a property of the lacquer of Schibler and suggests that this property be adapted to the dental paste of Kusano. In other words, the Office Action is silent as to how one having ordinary skill in the art would modify the paste of Kusano in order to be aqueously dispersible. The Office Action has failed to show that the ingredients of Schibler which give the lacquer aqueously dispersible properties would be compatible with the other ingredients of the paste of Kusano. In other words, one having ordinary skill in the art would not know whether the ingredient which gives the proposed dental paste its aqueously dispersible properties causes a chemical reaction or change in properties which would make the paste no longer suitable for use as an ion conductive dental paste. Therefore, it would not have been obvious to modify Kusano by making the ion conductive paste aqueously dispersible, as in Schibler.

Additionally, Schibler is not reasonably pertinent the problem of improving a dental paste. For example, Schibler is not reasonably pertinent to improving the permeability of a paste through narrow cavities and fracture lines of teeth, avoiding toxicity, reducing of clean-up after

use, and providing for sustainable and stable paste that is electrically conductive. A lacquer for paper, leather and textiles is not relevant to any of the above.

Thus, Schibler's disclosure of a thixotropic aqueously dispersed lacquer is not reasonably pertinent to Kusano's dental paste. As such, Schibler would not have logically commended itself to an inventor's attention in considering an invention as a whole. Therefore, it would not have been obvious to modify Kusano by making the thixotropic ion conductive paste aqueously dispersed, as in the lacquer of Schibler. Therefore, for at least the above reasons, Applicant respectfully submits that it would not have been obvious to modify Kusano by making the ion conductive paste both thixotropic and aqueously dispersed.

Next, as to claims 7 and 9, the Office Action alleges that it would have been obvious to optimize the range of the viscosity of the paste of the combination of Kusano and Schibler. In response, Applicants respectfully submit that the general conditions of viscosity are not disclosed in the cited art. The cited art has no disclosure regarding viscosity. In other words, since the cited art does not disclose broad ranges of viscosity, it is improper to conclude that the recited range of viscosity would have been obvious.

As to claims 2, 3, 6 and 10, Applicant respectfully submits that these claims are patentable at least due to their dependency on the independent claims. Favorable reconsideration is respectfully requested.

Claim 5 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kusano in view of Schibler, further in view of Caizza (U.S. Patent No. 5,964,737).

It is the position of the Office Action that Kusano discloses the embodiment as claimed, with the exception of teaching that the discharge part of the syringe is made of silicone rubber. The Examiner relies on Caizza to provide this teaching.

In response, Applicant respectfully submits that claim 5 is patentable at least due to its dependency on claim 4, which Applicant submits is patentable for at least the reasons discussed above. Favorable reconsideration is respectfully requested.

For at least the foregoing reasons, the claimed invention distinguishes over the cited art and defines patentable subject matter. Favorable reconsideration is earnestly solicited.

Should the Examiner deem that any further action by applicant would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone applicant's undersigned attorney.

If this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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